Haploids vs. Diploids	
Diploid cell	2n, two sets of chromosomes
Haploid Cell	n, one set of chromosome
homologous chromosomes	duplicate versions of each chromosome, essence of sexual reproduction: each parent donates half its chromosomes to its offspring.
Gametes	**sex cells* are haploid cells.
Genetics	
Traits	The position of a gene on a chromosome is called a **locus**.
Diploid organisms	**alleles**: two gene copies may be different from one another.
Homozygous: two identical alleles for a given trait	**Heterozygous**: two different alleles for a given trait
Non Mendelian Genetics	
Linked Genes	when genes on the same chromosome stay together during assortment and move as a group. (ex: flower color and pollen shape show up together)
	cannot segregate independently, violating Law of Independent Assortment.
	in the unlinked, there are four (TG, Tg, tG, tg), in the linked, there are only two (Tg and tG).
	If a crossover event occurs between linked genes, then recombinant gametes can occur, however, it's unlikely to occur.
	if certain combinations of alleles are found more often in offspring than they should, probably the two genes are close together and linked.
Recombinants	offspring formed from recombination events

Haploids vs. Diploids (cont)	
frequency of crossing-over between any two linked alleles is proportional to the distance between them, he farther apart two linked alleles are on a chromosome.	
Sex-linked/X-linked traits	Some traits, such as **color blindness and hemophilia**, are carried on sex chromosomes.
	most are found on the X chromosome
	A female with one color blind-X is called a **carrier**
Barr Body	X chromosome that is condensed and visible. In every female cell, one X chromosome is activated and the other X chromosome is deactivated during embryonic development.
Incomplete dominance (blending inheritance	Traits are blend.
Codominance	equal expression of both alleles.
Polygenic inheritance	a trait results from the interaction of many genes (height, skin color, weight)
Non-nuclear inheritance	genetic material not from nucleus, but from mitochondria or chloroplast. mitochondrial inheritance is always through the maternal(female) line, not the male line.
Pedigrees	Traits that skip generations are usually recessive. Traits that appear more in one sex than the other are usually sex-linked.
Phenotypic plasticity	two individuals with the same genotype have different phenotypes because they are in different environments

Meiosis	
production of gametes, only sex cells, female gamete (n) + male gamete (n) = zygote (2n)	
more variations in a population, more likely survive extreme changes in the environment.	
Meiosis is far more likely to produce these sorts of variations than is mitosis	
Interphase	same as miosis
Meiosis I	the homologous chromosome pairs separate
Prophase I	**synapsis**: two sets of chromosomes that come together to form a **tetrad**, then **crossing over**(exchange of segments) - genetic variaion
Metaphase I	line up. the alignment during metaphase is random, so the copy of each chromosome that ends up in a daughter cell is random.
Anaphase I	moves to opposite poles.
Telophase I	nuclear membrane forms around each set of chromosomes.
Meiosis II	to separate sister chromatids, same as mitosis
Meiotic Errors	
nondisjunctions	chromosomes failed to separate properly during meiosis. can occur in anaphase I (meaning chromosomes don't separate when they should), or in anaphase II (meaning chromatids don't separate).
translocation	occurs when a segment of a chromosome moves to another nonhomologous chromosome.